Deposition Designations for:
CRAIG MOLGAARD
June 25, 2009

Deposition Designation Key

Arrowood = Arrowood Indem. Co. f/k/a Royal Indem. Co. (Light Green)

BNSF = BNSF Railway Co. (Pink)

Certain Plan Objectors "CPO" = Government Employees Insurance Co.; Republic Insurance Co. n/k/a Starr Indemnity and Liability Co.; OneBeacon America Insurance Co.; Seaton Insurance Co.; Fireman's Fund Insurance Co.; Allianz S.p.A. f/k/a Riunione Adriatica Di Sicurta; and Allianz SE f/k/a Allianz Aktiengesellschaft; Maryland Casualty Co.; Zurich Insurance Co.; and Zurich International (Bermuda) Ltd.; Continental Casualty Co. and Continental Insurance Co. and related subsidiaries and affiliates; Federal Insurance Co.; and AXA Belgium as successor to Royal Belge SA (Orange)

CNA = Continental Cas. Co & Continental Ins. Co. (Red)

FFIC = Fireman Funds Ins. Co. (Green)
FFIC SC = Fireman Funds Ins. Co. "Surety Claims" (Green)

GR = Government Employees Ins. Co.; Republic Ins. Co. n/k/a Starr Indemnity and Liability Co.

Libby = Libby Claimants (Black)

OBS = OneBeacon America Ins. Co. and Seaton Ins. Co. (Brown)

PP = Plan Proponents (Blue)

Montana = State of Montana (Magenta)

Travelers = Travelers Cas. and Surety Cos. (Purple)

UCC & BLG = Unsecured Creditors' Committee & Bank Lenders Group (Lavender)

AFNE = Assume Fact Not in Evidence
AO = Attorney Objection
BE = Best Evidence
Cum. = Cumulative
Ctr = Counter Designation
Ctr-Ctr = Counter-Counter
ET = Expert Testimony
F = Foundation
408 = Violation of FRE 408
H = Hearsay
IH - Incomplete Hypothetical
L = Leading
LA = Legal Argument
LC = Legal Conclusion
LPK - Lacks Personal Knowledge
LO = Seeking Legal Opinion
NT = Not Testimony
Obj: = Objection
R = Relevance
S = Speculative
UP = Unfairly Prejudicial under Rule 403
V = Vague

In The Matter Of:

In Re: W.R. Grace & Co., et al., Debtors

Craig Molgaard, Ph.D.

June 25, 2009

Case No. 01-1139 (JKF)

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Q And have you been deposed before?
A Yeah.
Q How many times, to your best recollection?
A Fifteen or twenty.
Q Have you appeared as an expert before in litigation?
A Yes.
Q And have all of your depositions been in connection with your being retained as an expert?
A Yes.
Q All right. Can you characterize the type of expert work that you provided in the past?
A It's gone on for a while. I initially did some work around the swine flu litigation when I was working at Mayo Clinic. My chair was deeply involved in that, and so I worked with him. And we did consulting work around the Justice Department's issues with that series of lawsuits. A few other minor cases along the way. I did some work with welders in Missouri, that was a consultation. And it was, I believe -- I believe it was ALS, Lou Gehrig's disease in welders.
Most of what I did after that was working around dietary supplements like Metabolife and Herbalife and this sort of stuff where I worked for the companies, basically, in the litigation they had against them. It

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was a large litigation which went on for years. I was involved in something like fifty or sixty cases. And I think I was deposed like fifteen or twenty times. As I said, I don't remember exactly. That litigation has finally come to an end. And basically, I think I testified at a Frye hearing two or three times. I think I was actually in court two times or three times, something like that.
Q In your report, there are several instances when you talk about descriptive epidemiology.
A Uh-huh.
Q And I'd like to just kind of explore that a little bit to make your sure I understand what you're talking about when you use those terms.
I believe I wrote it down here that you described or defined descriptive epidemiology as "a study concerned with and designed only to describe the existing distribution of variables without regard to causal or other hypotheses"; is that correct?
A Uh-huh.
MR. FINCH: You have to say "yes."
THE WITNESS: Yes; sorry.
Q (By Ms. Harding) And as I understand it, you can correct me if I'm wrong, descriptive epidemiology is in -- it's one class of epidemiology --

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A Uh-huh; yes.
Q -- and analytic epidemiology is in another class; is that correct?
A Partially. It's -- you have an immediate distinction. If you think of it as a taxonomy, okay, you have experimental epidemiology and observational epidemiology. Those are the two top modes of research design.
Q Right.
A And then in observational epidemiology, you have descriptive epidemiology and analytic epidemiology. And within descriptive epidemiology, you have incident studies, prevalent studies, correlation studies, survivorship studies. And within analytic epidemiology, you have case control studies, cohort studies, historical cohort studies, like that.
Experimental epidemiology is clinical trials, community trials, behavioral trials, that sort of thing. So there's a major distinction between experimental epidemiology and observational epidemiology.
Q Okay. In -- with respect to the distinction between experimental epidemiology and observational epidemiology, when we're talking about the study of chronic diseases --
A Uh-huh.

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Q -- the type of epidemiology that's relevant is observational epidemiology; is that right?
A I guess I would say no, because you can do both. You will see large-scale trials in cardiovascular epidemiology like MRFIT that is a Multiple Risk Factor Intervention Trial which was a failure, but it did happen. But there are multiple different kinds of behavioral and community kinds of trials that look at chronic diseases.
Q Okay; that's fair enough. And I think I was thinking more of when you're studying or attempting to understand the impact of potential causative agents or carcinogens, most often you're talking about observational epidemiology because you can't typically expose -- intentionally expose humans to a potential carcinogen; right?
A Not on purpose; right.
Q Now, in the -- in an article I think that you wrote, Epidemiologic Concepts -- actually, I think I only have one -- which I'll mark in a second, marked Epidemiologic Concepts, and you were the first author and Stephanie K. Brodine?
A Brodine.
Q Brodine was the second author. In that paper, you have a glossary of terms where you define terms.

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And I just want to read this first -- actually, the second term which is analytic study, and make sure that you still agree that this is a proper definition.

It says here that -- "Analytic study, Study designed to examine associations commonly putative or hypothesized causal relationships; usually concerned with identifying or measuring the effects of risk factors or with the health effects of specific exposures; contrast descriptive study which does not test hypotheses." Is that still your understanding of the difference between analytic and descriptive epidemiology?

A I believe so, because I think that definition was taken from the second edition of Last, so yeah.

MS. HARDING: Okay; let's just mark that as Exhibit 3.

(Deposition Exhibit No. 3 marked for identification.)

Q (By Ms. Harding) And do you recognize that as the article titled Epidemiologic Concepts that you authored in 1992?

A Yes; right.

Q And that's the article I was just reading from; correct?

A Right.

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Q Okay.

In -- you've reviewed Dr. Whitehouse's reports in this case; correct?

A Yes.

Q And you are aware that he has filed a report that was issued on December 29th, 2008?

A Yes.

Q And then he filed another report that was filed in this case on May 15th -- I'm sorry -- May 16th, 2009.

A Yes.

MS. HARDING: Okay; let's mark the one that -- this as number 4 and this as 5, please.

MR. FINCH: December is 4 and May is 5?

MS. HARDING: Yes.

(Deposition Exhibit Nos. 4 and 5 marked for identification.)

Q (By Ms. Harding) If you could look at Exhibit Number 4 which is Dr. Whitehouse's report that was filed in December, then, do you recognize that report?

A Yes.

Q Okay. If you could turn to page 15 of the report, please.

MR. HEBERLING: For the record, Exhibit 4 does not appear to be a complete copy because not all exhibits are attached.

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MS. HARDING: I think this report does not include all exhibits. It just goes to the end of the page where his signature is; okay?

Q (By Ms. Harding) If at any point -- I think we have the exhibits, Dr. Molgaard. So if at any point you need them, feel free to ask me for them.

A Okay.

Q So on page 15 of the report, under section E, the title is CARD Mortality Study. Do you see that?

A Yes.

Q Okay. And then in the report, Dr. Whitehouse goes on to describe the CARD Mortality Study.

A Right.

Q Okay. And that is, with the exception of information that's provided in his May report, his expert report is where -- is the only place where there is information on the CARD Mortality Study; correct? It's not a published study, at least not right now; is that correct?

A That's my understanding.

Q And if you'll take a look at Exhibit 5, page 17 at section E, that's also a description of Dr. Whitehouse's CARD Mortality Study; correct?

A Yes.

Q And that's with some, I guess you'd say,

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up-dated information from the first report? Is that fair enough?

A That would be -- it appears to be that way, yeah.

Q Okay.

So the first thing I'd like to do, because we're going to, today, I think, talk about several studies or analyses that Dr. Whitehouse has performed. And I just want to make sure that I understand what I think your view of them is.

So in connection with the CARD Mortality Study that we just described, that is a descriptive study; correct?

A Correct.

Q It's a study concerned with and designed only to describe the existing distribution of variables without regard to causation or other hypotheses; correct?

A Yes.

Q Now, are you familiar with Dr. Whitehouse's Environmental Exposure to Libby Asbestos and Mesothelioma Study that was published in the American Journal of Industrial Medicine in 2008?

A Yes.

MS. HARDING: We're going to mark that as

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Exhibit Number 6.
(Deposition Exhibit No. 6 marked for identification.)
Q (By Ms. Harding) And I don't want to talk about it yet, but I've handed you Exhibit Number 6 which is that study. Do you recognize that?
A Yes, I do.
Q Okay. And this study is also a descriptive study; correct?
A Correct.
Q And it is -- as such, it is a study concerned with and designed only to describe the existing distribution of variables without regard to causal or other hypotheses; correct?
A Yes.
(Deposition Exhibit No. 7 marked for identification.)
Q (By Ms. Harding) I've marked as Exhibit Number 7, Dr. Whitehouse's study that appeared in the American Journal of Industrial Medicine in 2004. And the title is Asbestos Related Pleural Disease Due to Tremolite Associated with Progressive Loss of Lung Function Serial Observations in 123 Miners, Family Members and Residents of Libby, Montana. Do you have a copy in front of you?
A Yes, I do.

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Q And is that study, Exhibit Number 7, also a descriptive study?
A Yes, it is.
Q Okay. And it is a study -- I'm sorry -- it's a study concerned with and designed only to describe the existing distribution of variables without regard to causal or other hypotheses; is that right?
A That's right.
(Deposition Exhibit No. 8 marked for identification.)
Q (By Ms. Harding) And the last one I'd like to ask you about -- I think we're on number 8; is that right?
Exhibit 8 is an article titled Radiographic Abnormalities and Exposure to Asbestos Contaminated Vermiculite in the Community of Libby, Montana, USA. And I think this appeared in an Environmental Health Perspectives in 2003. Do you see that?
A Yes.
Q Okay; and do you recognize Exhibit 8?
A Yes, I do.
MR. FINCH: The Peipins article?
Q (By Ms. Harding) The Peipins article; yes?
A Yes.
Q Okay. And this also, as you've described in your report, is a descriptive study; correct?
A Yes.
Q And it is a study concerned with and designed only to describe the existing distribution of variables without regard to causal or other hypotheses; correct?
A Yes.
MS. HARDING: Now, I have a little chart that I started a long time ago that I kind of did from seventh grade biology. And I want to see if I think -- I think I have it right.
Well, let me start with this. Let's mark it as Exhibit 9.
(Deposition Exhibit No. 9 marked for identification.)
Q (By Ms. Harding) First of all, do you kind of -- do you recognize that scientific -- the steps in the scientific method? And have I captured them correctly?
MR. HEBERLING: Could I have a copy, please?
MS. HARDING: I do not have a copy, I don't think. We could print one at a break.
MR. HEBERLING: I think I'd like one now.
MS. HARDING: Then we'll take a break and we'll get a copy.

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VIDEO TECHNICIAN: Off the record, the time is 9:31.
(Deposition in recess from 9:31 a.m. to 9:32 a.m.)
VIDEO TECHNICIAN: We're back on the record. The time is 9:32.
MR. FINCH: Exhibit 9?
MS. HARDING: Yes, Exhibit 9.
Q (By Ms. Harding) Dr. Molgaard, I've given you what's been marked Exhibit Number 9 which is titled Scientific Method, Steps in the Scientific Method. And as I mentioned, it, literally, is me trying to kind of put in context, you know, epidemiology in the way that I can learn to -- kind of the scientific method in seventh grade where they talked about putting a, you know, bean in a room and making it dark and putting a bean in the light and seeing which grows. So -- is it fair -- well, do you agree with it, generally?
A It's not quite the epidemiologic method. It's a little bit different than what we do; okay?
Q Uh-huh.
A A lot of what we do is surveillance of populations. And so we start with What is the question?
Q Uh-huh.
A But -- for example, you have a large

surveillance system like the SEER system which is for cancer. And it has a number of states and a number of cities in the United States where every case of diagnosed cancer gets entered into a centralized registrar's system, and you identify and follow those cases. So basically what you're doing there is you're generating rates.

Q Rates of disease in populations?

A Yeah, yeah.

Q Right.

A And so the generation of those rates and the comparison of those rates across states, for example, you know, Does Iowa have more cancer than other places because there's a lot of pesticide and herbicide use there because it's a very agricultural state? So to answer that question you compare the rates there to the rates you get from Washington State, for example. So that -- so that to get to the hypothesis or question in epidemiology, it's not so much that you pluck one out of your mind, okay, though you can do that too, but, really, you look at what's happening in terms of descriptive population surveillance and the rates that are current. And then if you get an excess of rates someplace, then you say Well, what could be driving that? And then that gets you kind of to the developing

a hypothesis about what environmental exposures might be happening.

So, for us, there are kind of -- before you get to design a controlled study, it's the steps around the surveillance which is the descriptive part of our field.

Q Okay; I think that's very fair. So I think what you're saying is that, really, the -- if I put a box around "observe and develop hypotheses," I think what you're telling me and I think it's very fair, is that there's a huge field of work in public health and -- and -- I'm sorry -- descriptive epidemiological work that goes into collecting the observations --

A Right.

Q -- analyzing the observations and developing hypotheses.

A Right, right.

Q And then -- and what I wanted to make -- and I think -- I think I do -- I think I do get it. And so in your -- in the analogy you just gave, the descriptive part of the work that's done in your field is the gathering of the SEER data and the comparing of the rates in different places to make observations and develop hypotheses.

A Uh-huh.

Q Okay. And so in the example you just gave,

the -- looking at the rates in one county and looking at the rates in the other and seeing that Boy, this particular state that has a lot of pesticide use seems to have higher rates --

A Uh-huh.

Q -- we should investigate that. And they would then use analytic epidemiology to investigate the hypothesis that pesticide use is causing increased risk of disease. Is that right?

A That's normally the process, yeah.

Q All right.

On Exhibit 9, if I marked below the two boxes, I'm going to put "Above Descriptive" and I'm just going to write it down and then you can disagree if I'm wrong. And then below I'm going to put "CARD Mortality" which was Exhibit 3 and 4.

MS. BLOOM: 4 and 5.

MS. HARDING: Oh, it was? The reports are 4 and 5? I'm sorry. "The Whitehouse Mesothelioma Study," which is Exhibit 6. And the "Whitehouse Progression Study," which is Exhibit 7. And then the "Peipins ATSDR" is that okay for an abbreviation; Exhibit 8? I'll put a box around them so I'm not messing up everything there.

MR. FINCH: And you'll mark that copy as

the official copy?

MS. HARDING: Yes. And I'm going to mark this as Exhibit 10; okay?

(Deposition Exhibit No. 10 marked for identification.)

Q (By Ms. Harding) Would you agree with that description on the chart?

MR. HEBERLING: Objection; vague as to what "on the chart" may mean.

MS. HARDING: Okay.

Q (By Ms. Harding) As I've just described the four studies that are listed on the chart, Exhibits 4 and 5, Exhibit 7, Exhibit -- I'm sorry -- 6, and Exhibit 8 as descriptive epidemiology studies that fall under the heading "Descriptive" as I've written it on the chart under Observe and Develop Hypotheses. Would you agree with that, with the qualifications that you just gave before.

A If I can add another one or two, that -- the thing is, is that, also, when you do -- it's always a question of Compared to what? in epidemiology. So when you do these descriptive studies, you do end up, often, doing an observe-to-expected rate comparison; okay? So you're looking at, you know, asbestosis in Libby or whatever, and then you compare the rates you get there

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to some other study someplace. And you're trying to come up with, you know, I've observed this many cases, and I would -- based on these other studies which are also descriptive, I would expect this many. And so when you get more than that, that is often used in descriptive studies as an argument point that more studies need to be done or -- or something's going on here in this community; okay?

Q Okay.

A Now, an observe-to-expected ratio is still part of, in my mind, is developing a hypothesis and moving towards more analytic work, normally; okay?

Q Uh-huh.

A Because you're -- ultimately, your gold standard in -- in observational epidemiology is the cohort design where you do a relative risk. But all these other studies feed into getting to there; okay?

Q Yes.

A And they're part of the, as you say here, repeat studies. You know, when you come to a point where you think there really is something going on in a community, it's based on a series of studies that kind of show the same thing going in the same direction. And that's standard. There's never one definitive study. It's a bunch of studies that are kind of moving in the

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same direction. And then eventually policy makers come to the decision that something is happening in the community.

Q Okay. But with respect to the four studies that we've talked about earlier, with respect to those studies and what each of those were designed and can do --

A Uh-huh.

Q -- they are descriptive studies that are not designed to test hypotheses; correct?

A In and of themselves, correct.

Q And the kind of explanation you just gave about looking at descriptive studies and then comparing them to other descriptive studies, that's a separate issue; correct? I didn't ask you in there about any comparison of the studies to anything else. I just asked about the studies. So in other words, if you're going to take a descriptive study and compare it to another descriptive study and, as you said, maybe make arguments about -- or develop a hypothesis about something, that is a separate process; correct?

A Well, often you'll find in papers of this kind that they do make that comparison. They'll say Well, if we take this -- the numbers we have here and the rates we have here, and compare them to what's happening in

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New York State, you know, that sort of argumentation will be included in those papers.

Q Yes.

A So they are alluding to etiological theories, although, in and of themselves, they're considered to be descriptive; okay?

Q Right. And that's very fair. And the fact that those studies -- like Peipins makes those kinds of comparisons and arguments --

A Yeah.

Q -- doesn't turn the study into an analytic epidemiology study; correct?

A No. And really what you're trying to do when you do that sort of thing is you're trying to generate an interest in the field that there should be additional studies in this area.

Q Right. And, indeed, in Peipins, for instance, Peipins does that very thing in the study.

A Yeah.

Q We should study this.

A Yeah.

Q And study it doing a controlled epidemiologic study.

A Right.

Q Okay.

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I would like to, then, talk a little bit about the CARD Mortality Study and this issue of comparing it to other studies --

A Uh-huh.

Q -- okay? And in your report, you state that Dr. Frank found that it was a proper comparison. I might be paraphrasing, but I think that's what you said.

A In a rough way.

Q Okay. Did you, yourself, do any work or analysis to try to compare the CARD Mortality Study to any other study?

A No.

Q Okay. So when Dr. Whitehouse, in the CARD -- in his report, compares his CARD Mortality Study to the study by Selikoff and Seidman and then makes conclusions based on that comparison, you have not done any analysis to test whether the comparison is proper or the conclusions are proper; is that right?

A Other than reading the papers, the literature that I was given and thinking about the comparison whether it was a reasonable one or not, I've not done an analysis of my own of things.

Q Okay.

A Okay.

Q So you did read the Selikoff and Seidman paper

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that Dr. Whitehouse refers to when he compares the CARD Mortality Study to that paper.
A Yeah.
Q Okay. And you did read the Markowitz study that Dr. Whitehouse compares his study to.
A Uh-huh.
MS. HARDING: Okay.
Then I'd like to just explore a little bit the similarities and differences between Dr. Whitehouse's CARD Mortality Study and the Selikoff and Seidman paper and Markowitz paper.
The first thing I'd like to ask is -- let's start with the Markowitz paper. Do you have that? Thanks.
(Deposition Exhibit No. 11 marked for identification.)
Q (By Ms. Harding) Do you recognize Exhibit Number 11 entitled Clinical Predictors of Mortality for Asbestosis in the North American Insulator Cohort, 1981 to 1991?
A Yes.
Q One second, I'm just trying to locate -- okay. On page 20 -- sorry -- page 25 of Exhibit Number 5 which is Dr. Whitehouse's report --
A Uh-huh.

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Q -- do you have that?
A Yeah. Yes, I do.
Q Okay.
MR. FINCH: That's the May report?
MS. HARDING: Yes, it is the May report.
Q (By Ms. Harding) On page 25, the last full paragraph, through page 28, the first full paragraph, Dr. Whitehouse describes his comparison of the CARD Mortality Study to the Markowitz 1997 study; correct?
A Right.
Q Okay. The first thing that I wanted to ask you is, I -- well, I think I'll just go through the study and ask you the questions.
If you look at Exhibit 11, page 102 of the publication which is the second page, under Methods Study Population and Clinical Examination, do you see that?
A Yes.
Q Okay. The first thing it says is "The study population was a subset of the ongoing mortality follow-up of 17,800 asbestos insulation workers (members of the International Association of Heat and Frost Insulators and Asbestos Workers) that has been conducted since January 1, 1967." Do you see that?
A Uh-huh.

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Q Okay. The first question I want to ask is, is the CARD Mortality Study a subset of a defined study population that has ongoing mortality follow-up work being done on it?
A I missed the first part of your question. You're asking about --
Q It was asked very poorly, so I'll start over.
You're familiar with the -- Dr. Selikoff's insulator study; correct?
A Yes, I am.
Q It's a famous group of studies; correct?
A Yes; right.
Q And he started following an insulator cohort.
A Right.
Q Okay. And insulator cohort was defined in a very rigorous -- very rigorous epidemiological procedures; is that fair to say?
A Yes.
Q To your knowledge, has Dr. Whitehouse performed that kind of study on his patients at the CARD Clinic?
A Given his -- I think it is the same category of studies. It's a similar kind of study. But the difference is that Selikoff had a large team and much greater resources, so he could do things that were probably beyond Whitehouse's ability. But the

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general -- the general idea is roughly the same.
(Deposition Exhibit No. 12 marked for identification.)
Q (By Ms. Harding) Do you see the document that's been marked as Exhibit 12?
A Yes.
Q And this is a paper by Irving Selikoff and Herbert Seidman; correct?
A Yes.
Q And the title is Use of Death Certificates in Epidemiological Studies, Including Occupational Hazards: Variations in Discordance of Different Asbestos-Associated Diseases on Best Evidence Ascertainment. Do you see that?
A Uh-huh.
Q If you go to page 484 of the article --
A Uh-huh.
Q -- Dr. Selikoff and Dr. Seidman, under Materials and Methods --
A Uh-huh.
Q -- list a general description of the way that their insulator cohort study was performed.
A Uh-huh.
Q The first paragraph says "On January 1, 1967, there were 17,800 men on the rolls of the International

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Association of Heat and Frost Insulators and Asbestos Workers in the United States and Canada. They were members of its 120 local unions in different regions." Do you see that?

A Yes.

Q Okay. Do you understand the description of the 17,800 men to be an attempt by Dr. Selikoff and Dr. Seidman to identify all the possible insulators in the US and in Canada who could have potentially been exposed to asbestos in their job as insulators?

A Yes.

Q Okay. It's true, is it not, that Dr. Whitehouse has not attempted to identify a cohort of individuals in the United States and Canada who could potentially have been exposed to asbestos in Libby; is that correct?

A He has not done a cohort mortality follow-up on the national level; that's true.

Q Okay. And he hasn't even attempted to identify all the people that could be exposed to asbestos from Libby; correct?

A I don't believe he has.

Q Okay. So in that regard, the Selikoff cohort is different from the population of patients that Dr. Whitehouse is studying; is that correct?

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A It's different in terms of -- of where they're finding their material. But basically, they're similar in that what you're looking at is mortality follow-up and clinical correlates of the mortality. And so in that sense -- and you're looking at roughly the same kinds of materials.

The difference is, is that what Selikoff was trying to do was to try to simulate -- or emulate a population-based study. And he didn't have a geographic population. What he had instead was everybody in this union; okay? That was his case material. And then he followed them.

What Whitehouse has is a bunch of clinical material that has come to his attention that essentially it's a case series, and then he's followed them to see what happens with the mortality experience. So in that sense, where the material has come from is different. And that's why you'll get things like this -- in the Exhibit 5, page 26, where the comparison between the two groups is done by Whitehouse, comparing Markowitz to the CARD study. And they're not -- you know, they're not exactly on exactly the same numbers. But when you do these comparisons, you don't always get, you know, a perfect match when you're doing a comparison; okay? So then you have a value judgment, Are these reasonably

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close enough? Well, yeah, because there's no real guidelines about when the comparison population is good or not; okay?

Q Right. Well, actually, I was going to get to that later. But the bottom line about the comparison is there's -- there are no guidelines for how to do the comparison, and there is no way to test whether it's correct or not; correct?

A There's no formal test that I know of, yeah.

Q All right. So it also says that the international -- on page number 484 -- well, let me go back.

Dr. Whitehouse's patients come to him based on -- because he's a doctor and he treats people for pulmonary disease; correct?

A Uh-huh; right.

Q And some of the patients have come to him because they've been referred by lawyers or other doctors; correct?

A Yes.

Q And even within -- well, strike that; we'll get back to that.

But in terms of identifying the population of people that have been exposed to asbestos from Libby that was generated in Libby, you would agree with me

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that the CARD Mortality Study does not attempt to do that; correct?

MR. HEBERLING: Objection; asked and answered.

THE WITNESS: The question is -- could you repeat that?

Q (By Ms. Harding) With respect to -- Dr. Whitehouse did in no way, shape or form, attempt to identify the people in the United States that have been exposed to asbestos that was generated in Libby by Grace; correct?

MR. HEBERLING: Same objection.

THE WITNESS: Correct.

Q (By Ms. Harding) Okay. And, indeed, Dr. Whitehouse has not attempted, even within Lincoln County, to identify the people that have been exposed to asbestos that was generated at the Libby mine; correct?

A Correct. What he was looking at was the case material that had come to his practice.

Q Okay. And in that regard, it's different from the insulator studies; correct?

A It's smaller. I don't know if I would say it's different, per se. I mean, the goal, really, when they're doing the comparison was to see, Okay, what happens with mortality here in terms of this one disease

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or these couple of diseases, and then What are the clinical correlates of it? So the fact that Whitehouse was operating with a case series, there's nothing in the books that says that you can't compare material from a case series that you followed with a case grouping that comes from a large union that's been followed also. I mean, you can compare them.

And, in fact, in a way, what I think Whitehouse was trying to do was to say saying What's the gold standard for mortality follow-up studies? Well, in Seidman, for this disease, you know, What does my clinical case series -- which is a valid epidemiologic thing to look at, physicians do it all the time -- how does my case series compare to this gold standard, you know.

Q Okay; let's just move on.

It says that a questionnaire was sent to each insulator for information including a lifetime smoking history, format consisting with American Cancer Society study, pertinent clinical symptoms, and a limited number of occupational considerations, personal experience with dust counts and industrial hygiene measures. Do you see that?

A Are we on 484?

Q I'm on 484 still, at the bottom of the second

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paragraph under Materials and Methods; actually, the third paragraph.

A Yes, I see that.

Q Okay. And to your knowledge, did Dr. Whitehouse or anybody -- did Dr. Whitehouse send out and administer a questionnaire of the sort that was used by the -- by Dr. Selikoff?

A No, I don't believe he did.

Q And on the next page, if you turn the page, it says "Since 1967, we have maintained observation of the entire cohort with the assistance of officials of the local unions in the International Office of Union. Whenever a member dies, we are notified often both by the local union and by the health and welfare unit of the Washington office." And that "Sometimes, even such double surveillance may be unaware of the death of a member....Therefore, periodically, we send lists of local union members assumed to be alive...to each local union and request confirmation of current vital status."

With respect to the population of people in the United States that were exposed to asbestos from Libby, to your knowledge, Dr. Whitehouse hasn't attempted to ascertain the deaths of those people; correct?

A Right.

Q Okay. And with respect, even, to the

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population in Libby or Lincoln County that was exposed to asbestos from the Grace mine in Libby, Dr. Whitehouse has not attempted to ascertain the death certificates of that group; correct?

A That's my understanding.

Q Okay. The only death certificates Dr. Whitehouse has obtained are the death certificates in his group of patients; right?

A That's my understanding.

Q In the Selikoff study, it says, on page 485, "The local union officials are then requested by their national office to complete a specific mortality form that includes such information as the facility in which death occurred, treating physicians, next of kin, and other pertinent data. This is supplemented by current records of the Washington office including the most recent mailing address....Inquiry is then directed to all treating facilities (hospitals, extended care units, outpatient clinics) and to all treating physicians requesting clinical data and loan of available chest x-rays." Do you see that?

A Yep.

Q Okay. And it's true, is it not, that Dr. Whitehouse has not requested that -- has not attempted to -- well, it's true that Dr. Whitehouse has

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not followed that procedure; correct?

A I don't believe he has.

Q Now, going down further, it says "All pathology facilities known or likely to have surgical or autopsy material are also contacted both for information and for permission to borrow histopathological material with, again, generally excellent response. The material received is forwarded to our pathology unit for independent study and then returned with our thanks and acknowledgment of the assistance provided." Now, obviously, Dr. Whitehouse hasn't attempted to do that with respect to the population in the US or Libby that have been exposed to asbestos from the Grace mine in Libby. But you would agree with that; right?

A Yes.

Q Okay. It's true, also, that Dr. Whitehouse has not attempted to do that, collect all the pathology that might be available on his patients systematically; correct?

A On his patients in his case series? I don't really know whether he has or not.

Q Okay. Is it set out in his -- either his expert report in December of '08 or May of '09 that he attempted to do that?

A I just don't remember.

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Q Okay. I mean, my question is -- I understand that there are cases in which Dr. Whitehouse may have pathology information in some of his patient records.
A Right.
Q To your knowledge, has he done -- has he made a systematic attempt to obtain pathology or histological information on his patients that have died?
A Other than if the material was already in the record, I would say no.
Q On the bottom of page 486, under Categorization of Causes of Death, Dr. Selikoff and Seidman explain how they conducted their best available information test for determining cause of death. Do you see that?
A Uh-huh.
Q Okay. And I'm just going to read what it says. "As a rule, the best available information for establishing the cause of death was considered to be autopsy findings with pathological information derived from surgical intervention next and, in their absence, clinical and roentgenological" -- did I say that right; kind of?
A Yeah.
Q -- "observations made during life including the period before death. Where no such details were available, the cause of death as recorded from death

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certificate information was utilized; it was then the 'best evidence.'" Do you see that?
A Yes, I do.
Q In either his report in December or his report in May, has Dr. Whitehouse set out the protocol or study design or method by which he made his best available information judgment?
A He has, in a sense. Because what the -- what Selikoff is saying is that in the absence of pathological information, clinical material, diagnoses made during life, including the period before death, is an acceptable form of evidence. And then -- so what Whitehouse has done, by and large, I believe, is that he has considered that the clinical diagnoses he made from his practice are reasonable evidence for inclusion in this best available format.
It's like number three on the list. If you don't have -- if you don't have, you know, autopsy material, then maybe you have clinical and x-ray material made during life as diagnostic material.
Q But he hasn't -- well, first of all, he hasn't set out the, you know, hierarchy of how he determined what judgments would be made; correct?
A No, I didn't see it. I mean, I think, really, he just kind of invoked this as This is sort of the

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approach we used. But the actual algorithm, I've not seen.
Q And, indeed, I think you read Dr. Whitehouse's deposition; correct?
A Yes, I did.
Q And he was asked if there was a written protocol for how he conducted those assessments, and he said no. Do you recall that?
A I don't remember that exactly, but I think he's right.
Q Okay.
Now, coming back to the Markowitz paper, the Markowitz paper which was Exhibit Number 11; correct?
A Yes.
Q Which was one of the studies that Dr. Whitehouse attempted to compare it to; correct?
A Right.
Q Okay. That -- the cohort that we just described from the Selikoff paper, Exhibit Number 12, is the same cohort; correct?
A Yeah; it's a subset of it.
Q Okay. So all of the -- the discussion we just had about the similarities and differences between the Selikoff cohort and the Whitehouse CARD mortality group applies to the Markowitz paper as well; correct?

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A I would say that.
Q Now, I would like to talk more about the Markowitz paper under the Methods section, starting on page 102. Okay; so the group studied in Markowitz is a subset of the Selikoff insulator population; correct?
A Right.
Q Okay. And the -- in July of '81, all surviving insulators from the original cohort who had begun work as insulators thirty or more years previously, were invited to participate in a clinical examination; correct?
A Right.
Q Okay. So this Markowitz study started with an attempt by Markowitz and his co-authors to identify all the surviving members of the original cohort of insulators; correct?
A Right.
Q And then for various reasons, either they didn't respond or -- I guess it's just that they didn't respond. But at the end of the day they have a final group used in the current study which included 2,609; correct?
A Yes, that's what they say.
Q And that actually was 90 percent -- well, let me back up.

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THE WITNESS: I don't remember if -- I don't think there was anything in there on smoking history in the CARD, but I could be wrong on that.

Q (By Ms. Harding) Okay. Well, it's fair to say, though, that as described in the Selikoff paper -- well, in the Selikoff cohort and in the Markowitz -- well, let me back up.

In the Markowitz paper, "Never-smokers were defined as insulators who smoked less than one cigarette per day, had smoked greater than or equal to ten cigarettes per day for greater than six months, or smoked only cigars and pipes, without inhaling. Current smokers exceeded these limits. Ex-smokers also exceeded these limits and had discontinued smoking greater than or less than two years previously." Do you see that paragraph?

A Yes, I do.

Q Okay. That kind of smoking information was not assessed or reported in the CARD Mortality Study; correct?

MR. HEBERLING: Objection; misstatement of the record.

MS. HARDING: Well, Jon, if -- if you can tell me where that kind of smoking information was reported by Dr. Whitehouse, I'd like to see it, please.

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MR. HEBERLING: It's on the spreadsheets.

MS. HARDING: Defined as smoked less than one cigarette per day, had smoke greater than ten cigarettes per day for greater than six months, or smoked only cigars and pipes without inhaling? That's on the CARD Mortality Study somewhere in some data.

MR. HEBERLING: Your question went to smoking status and other matters.

MS. HARDING: My question was very specific, and I asked specifically -- I read the paragraph from the Selikoff study and asked if that information was provided in the CARD Mortality Study. I was trying to distinguish it --

MR. HEBERLING: The record will reflect the question that you posed and the objection I made.

MS. HARDING: Okay; that's fair enough. So I'll ask it again, just to be clear.

Q (By Ms. Harding) On page 102, at the top of the page on the second column, there's a paragraph that begins "Never-smokers." Do you see that?

A Yes.

Q Okay. And I'm just going to read it. It says "Never-smokers were defined as insulators who smoked less than one cigarette per day, had smoked less than ten cigarettes per day for less than six months." Did I say that right?

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A Yeah.

Q "Or smoked only cigars and pipes, without inhaling. Current smokers exceeded these limits. Ex-smokers also exceeded these limits and had discontinued smoking greater than or less than two years previously." Do you see that?

A Yes, I see it.

Q Okay. Has Dr. Whitehouse, in connection with your review of the CARD Mortality Study, provided detailed smoking information of the kind described in that paragraph?

A Not that I am aware of, though I must say that this is an exceedingly funky description of smoking history. I mean, this is clearly something that came back from earlier on in the original study. Because that -- you know, "smoking only cigars and pipes, without inhaling"? I mean --

Q Fair enough. Let me ask this. It's fair to say that -- would you agree that the -- Dr. Selikoff attempted to ascertain the smoking status of his participants; correct?

A Given the state of the art at the time, yes, he did.

Q Okay; given the state of the art at the time.

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A Yes.

Q That's fair. And the smoking status of the insulators was known to the Selikoff researchers and was reported in other papers; correct?

A I believe so.

Q And the analysis performed by Markowitz in this paper, Exhibit 11, includes an analysis of smoking status; correct?

A I imagine he put it in there. Yeah, he does have it in there in table 3.

Q Okay. And there's no such analysis -- similar analysis of smoking in the Whitehouse CARD Mortality Study as reported by Dr. Whitehouse on -- in Exhibit Number 4 and 5; correct?

A Not that I'm aware of.

Q Okay. Under the next section, Mortality Follow-up, it says that "The cause of death as listed on the death certificate is categorized by an experienced nosologist." In the CARD Mortality Study, that did not take place; correct?

A Correct.

Q And, again, I think we've already covered this, but here in the Markowitz study, "All available medical records, chest radiographs, and histology slides pertaining to the circumstances of death of the

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individual are obtained if they exist." And in the CARD Mortality Study, it's correct that Dr. Whitehouse did not attempt to make systematic inquiry for all of his patients with respect to those kinds of documents; correct?

A That's my understanding.

Q Now, on page 102, in the very last line of the Mortality Follow-up, it says, "An asbestosis death in this study refers to death from parenchymal asbestosis." Do you see that?

A Yes.

Q Okay. And what do you understand that to mean?

A I'm wondering if it means -- if their intent was to say, "interstitial," I believe is the term, asbestosis.

Q Right.

A Yeah, I think that's what they're trying to say.

Q There's a difference between fibrosis in the parenchyma and fibrosis in the pleura; correct?

A Yes.

Q Okay. And fibrosis in the parenchyma is typically also referred to as interstitial fibrosis; correct?

A Right.

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Q Okay. And so Markowitz reports that "An asbestosis death in this study refers to death from parenchymal asbestosis."

A Uh-huh.

Q That is very different than the definition of asbestos-related disease death as used by Dr. Whitehouse in the CARD Mortality Study; correct?

A It is different, yeah.

Q Dr. Whitehouse's definition of a disease that -- I'm sorry -- a death that could be classified as caused by asbestos, included deaths where the individual had only pleural disease as opposed to parenchymal or interstitial fibrosis; correct?

A Correct.

MS. HARDING: Oh, three minutes on the tape? Okay. Do you want to take a quick break? He has to change tapes.

THE WITNESS: Okay.

VIDEO TECHNICIAN: We're going off the record. The time is 10:28.

(Deposition in recess from 10:28 a.m. to 10:35 a.m.)

VIDEO TECHNICIAN: We're back on the record. The time is 10:35. This is the beginning of tape two.

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Q (By Ms. Harding) Dr. Molgaard, just continuing our discussion about the Markowitz paper which is Exhibit Number 11 and one of the papers that Dr. Whitehouse compares his CARD Mortality Study to, it says under Statistical Analysis on page 102, the last paragraph on the right-hand side, that "Mortality follow-up was conducted between the date of examination for each insulator" -- meaning the date of their initial clinical examination; correct?

A Yes.

Q -- "and December 31, 1991"; correct?

A Yes.

Q Okay. And does -- did Dr. Whitehouse have a specified time period that he used to define the follow-up exercise that he conducted in the mortality -- the CARD Mortality analysis?

A I don't -- I don't remember what it was. It seems to me that there was a shut-off date, but I don't remember what it was, so --

Q So he had a shut-off date.

A Yeah.

Q Was that -- when was that imposed?

A You know, I don't -- I just don't remember what the follow-up period was. I have some idea it was thirty-five months of the follow-up, but I could be very

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wrong about that.

Q So for each patient, there was thirty-five months of follow-up?

A No, it was uneven amounts of follow-up. They came into his practice at different points in time.

Q Right. So there was no initial setting of the clinical diagnosis and then subsequent setting of the time that the follow-up would be conducted; correct?

A It was not a formal statement like this.

Q Okay. And, indeed, there were people that came in many years ago and some that had come in more recent in the CARD Mortality Study; correct?

A That was my understanding.

Q Okay. In descriptive epidemiology, what's the purpose of setting a time period from which you make the initial observation and then setting a time period from which you make the last observation? What's the purpose for doing that?

A Well, you're always concerned with person, place, and time, in descriptive epidemiology. So what you're trying to say is that during this exact period of time, this is how cases were ascertained. This is how cases were determined, and it's just this period of time; okay? And you can -- you can have a period prevalence or a point prevalence during that period of

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time --
Q Uh-huh.
A -- or you can do the person years thing, which they did here in this study, which is the amount of observation on any one person; how many years did that person contribute to the denominator.
Q Uh-huh.
A But you're really trying to be very specific about when you have ascertained cases.
Q Okay. And is the -- is that period of time as you've just described, an important feature of a study to consider when comparing it to other studies?
A You mean -- I guess you're asking Does the time period -- does it need to be the same amount of time, or does it need to be the same place in time?
Q I'm asking is there a -- if you were -- if you're trying to understand the relationship between diagnosis of disease --
A Uh-huh.
Q -- and death --
A Uh-huh.
Q -- and the -- which is what I -- is that what I understand the mortality study -- CARD Mortality Study to be doing?
A Yeah.

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Q Is it important to understand -- to have -- if you want to compare what you found in the CARD Mortality Study to other studies, is it important to have a similar number -- I guess start with a similar number of person years?
A It would be a tired comparison if you had a similar number of person years. But, really, what you're doing -- what you're going to get to in any case is you're going to get to rates per hundred thousand per million, and then that's your rule, the nexus of your comparison is what the rates are doing; okay? So it's -- you know, a perfect comparison would have this -- you know, both studies would be from 1986 to 1991. They would both be doing person years; okay? And the populations would be exactly the same size; okay? But you never get anything like that to work with.
Q Okay. If I want to -- it seems as -- I've tried hard to understand this, so I'm going to see if I've got -- if I put "Whitehouse mortality" -- I should start a new page.
I truly am trying to understand this.
A Uh-huh.
Q So if I put "Whitehouse CARD Mortality" and I put "Markowitz." The bottom line conclusion of -- in Dr. Whitehouse's report, seems to me, is on page 27 when

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he says "The most striking observation is that the CARD patients' death rate from asbestosis is about three times that of the insulators (34 percent to 11 percent)." Do you see that?
A Yeah, I remember that.
Q That's on page 27 of the May report.
In looking over at the table that Dr. Whitehouse reports on page 26, do you see that table? I'm sorry; Exhibit Number 5.
A Page 26?
Q Uh-huh.
A Okay.
Q Okay; it's got Markowitz in the first column --
A Yeah.
Q -- and CARD Mortality in the second column.
A Uh-huh.
Q And in the first row it says "Mean age at examination." Do you see that?
A Uh-huh.
Q So if I go to the fifth row, it says "Asbestosis deaths as a percent of total deaths."
A Uh-huh.
Q And for Markowitz it has 11 percent, and for CARD Mortality it has 34 percent.
A Uh-huh.

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Q That's the comparison -- that's the ultimate comparison that Dr. Whitehouse is making, correct, when he says that "The CARD patients' death rate from asbestosis is about three times that of the insulators"; correct?
MR. HEBERLING: Objection; confusing, vague.
Q (By Ms. Harding) Okay; well --
A Um --
Q Do you -- do you understand my question?
A I think I do. That is the basis of the -- of the statement that there is a difference of so much between the two populations.
Q He says three times the insulators; correct? The death rate is three times that of the insulators.
A Right.
Q Right.
Before asking you more questions about that, Dr. Selikoff published numerous analytical epidemiology studies on the insulators; correct?
A Yes.
Q And we have in those studies, reported standard mortality ratios and relative risks of disease in the insulators from exposure to asbestos; correct?
A Right.

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Q And, similarly, with respect to the Libby worker cohort in Montana, we have cohort mortality studies that report SMRs; correct?
A Right.
Q If you wanted to understand the rates of death among the insulator cohort and the miners exposed to Libby asbestos, would you agree that the best place to look would be to look at those two studies?
A The two studies being --
Q Well, the two sets of studies.
A The Selikoff set of studies --
Q Yes.
A -- and then the ATSDR ones?
Q No, not the ATSDR ones. The studies done by Dr. Amandus and Dr. McDonald on the cohort of workers in Libby, Montana.
A Well, I would look at all of it, but -- so I would look at Amandus and McDonald and the ATSDR, if it was me.
Q Okay. And including the ATSDR Mortality Study then.
A Right.
Q Okay. For the death rate -- if we're just talking about the workers --
A Uh-huh.

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Q -- you get the death rates in the Amandus and McDonald studies --
A Uh-huh.
Q -- as well as there's some information in the ATSDR Mortality Study; correct?
A Yes.
Q And then in the insulator cohort studies, or the series of studies by Selikoff reporting relative risk and SMRs; correct?
A Right.
Q Okay. And you would agree that those groups of studies are analytical epidemiological studies reporting death rates; correct?
A Yeah, by and large.
Q Okay. As opposed to the CARD Mortality Study which is a descriptive study attempting to ascertain death rates in the CARD patient population.
A Right.
Q Now, going back to this chart on page 26, and looking at the asbestosis deaths as a percent of total deaths, for Markowitz it says 11 percent. And when I look at the Markowitz paper, I think I understand that that number comes from -- if you look at page 103 under Results, the first -- well, I guess it's the second full paragraph, it says "From 1981 to 1991, a total of 674

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insulators died, including 74" which is 11 percent -- that's in the thing here --
A Yeah.
Q -- "whose cause of death was asbestosis"; okay? So the 11 percent comes from -- so if I put "Deaths" up here and I put "Deaths for Markowitz is 674"; right?
A Right.
Q And 74 are by asbestosis; right?
A Right.
Q And for Dr. Whitehouse, it's -- I want to say 126 but I want to make sure. It might be 186. It is 186. I'm just trying to find the place in the paper where he says that.
A Page 24 --
Q Thank you.
A There's a table All Causes of Death.
Q "All Causes of Death"; right. Okay. So the table on page 24 reports 186 deaths in the CARD study; correct?
A Right.
Q So I'm going to put "186" under "Deaths for CARD," and then the number from asbestosis, 74; is that right?
A Seventy-six, level 186.
Q Seventy-six. Okay; and the percent -- I guess

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I should put a little line here that says "Percentage." And the percent is 34 for Libby and 11 for Markowitz; correct?
A Yeah.
MS. HARDING: Okay. Just so we can talk off the same chart, I'm going to mark this as -- where are we?
MR. FINCH: 13.
MS. BLOOM: 13.
MS. HARDING: And actually, I have "Deaths" -- which are the columns for the numbers percent -- or number asbestosis?
Q (By Ms. Harding) Is that number asbestosis in that column, is that right, if you look at page 26?
A It's -- yeah, it's percentage of the total deaths is 34 percent; yeah.
Q Right; okay. But the number of asbestosis deaths, I guess, is the number for CARD at 76 and for Markowitz it's 74; correct?
A Yeah.
MS. HARDING: All right. So can you mark that, please?
(Deposition Exhibit No. 13 marked for identification.)
Q (By Ms. Harding) So this is Exhibit 13. Just

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Helena, and I went to a practice that had people with asbestos-related disease who had also died, and upon examination it turned out that none of the people that had asbestos-related disease had died, then I'd have a zero rate of disease caused by asbestosis; correct?
A Right.
Q Okay. So the CARD Mortality Study is completely a function of the number of people in Dr. Whitehouse's study; correct?
A I don't know if I'd say "completely a function," but -- but it is a proportion of the people he has in his case series who have died of asbestosis.
Q Okay.
And -- one more -- a couple more questions about Markowitz. Markowitz, after determining -- well, it's fair to say that the Markowitz study was attempting to -- let me start over.
Do you consider the Markowitz study to be descriptive epidemiology or analytic epidemiology?
A I consider it to be analytic.
Q And why is it analytic?
A Because they have a cohort that they have followed through time. And they have established what the relative risks are for mortality and done age-adjusted relative risks and 95 percent confidence

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intervals. And that's what happens in an analytic study.
Q And, indeed, in the Markowitz paper itself, because of the information that's available to Dr. Markowitz, they actually were able to calculate risks --
A Uh-huh.
Q -- correct?
A Yes.
Q Okay. Which -- relative risks.
A Right.
Q And Dr. Whitehouse's CARD Mortality Study is not capable of doing that; correct?
A Right, because everybody is diagnosed with asbestosis; right.
Q Okay.
Looking at the Selikoff and Seidman article which I think we marked it Exhibit Number 12. I'm sorry. There we go, I'm trying to find Dr. Whitehouse's paper in May.
Looking at page 24 of Dr. Whitehouse's May '09 report.
A That's 5, isn't it?
Q Yes, Exhibit Number 5.
A Okay.

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Q The same discussion that we just had relating to Markowitz and the total number of deaths used to calculate percentages in the table reported by Dr. Whitehouse on page 24 applies; correct?
MR. HEBERLING: Objection; overbroad.
MS. HARDING: I agree. I just wanted to kind of -- maybe I was trying to short-circuit it.
Q (By Ms. Harding) Do you agree that in the Selikoff and Seidman study, the ascertainment of the deaths in the insulators was not limited to insulators that had a prior diagnosis of an asbestos-related disease?
A Yes.
Q Okay. So that the number used to calculate -- the denominator used to calculate the rate of death from asbestosis in the Selikoff and Seidman article is different than the denominator used to calculate the rate of death in the CARD Mortality Study.
A Yes.
Q Okay. And actually, I should probably ask that of Markowitz because I think it made more sense.
The denominator used to calculate the rate of death from asbestosis in Markowitz was determined differently than the denominator used in the CARD Mortality Study; correct?

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A The denominators are different, yeah.
Q Okay. And if you use the same methods that Dr. Whitehouse used to determine his denominator in the CARD Mortality Study in both the Selikoff and the Markowitz papers, then their denominators for calculating rate of death would be lower, because you'd be limiting them to only deaths for people that had a prior diagnosis of asbestos-related disease; is that right?
A Well, I think if you -- if you limit it to people who have just been diagnosed --
Q If you limit your total number of deaths --
A Right.
Q -- to just people who also had been diagnosed prior with asbestos-related disease, then the total number of deaths would be lower.
A I don't think so. I think it would go the other way. There would be -- it would be higher.
Q You have a total number of deaths in the cohort.
A Yeah.
Q The 674.
A Right.
Q And if that total number could only include also people -- I mean, this is the total number of

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who had parenchymal asbestosis or interstitial fibrosis, then Dr. Whitehouse's numerator would be lower; correct?
A If that was the case.
Q Okay. And I believe somewhere in Dr. Whitehouse's report he actually reports the number of people that just had interstitial fibrosis; correct?
A I believe he did, yeah.
Q Okay. So he says on the bottom of page 19, paragraph three, "Twenty-six percent of those who died of nonmalignant disease died with pure pleural disease with no interstitial fibrosis"; correct?
A Uh-huh.
Q So if you just use Dr. Whitehouse's own numbers, then you would reduce the numerator in his calculation by 26 percent; correct?
A Okay; yeah.
Q The -- and you said you reviewed Dr. Frank's deposition. And in that deposition he said -- I just wanted to ask about one thing, if I could find it here. He said with -- it says on page 206 of his deposition which I don't think you have. I'm just going to read this to you and -- we don't have to mark it unless you want to see it. I'm happy to show it to you. He's describing Dr. Selikoff's best methods analysis.
A Uh-huh.

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Q And he says "What Dr. Selikoff would do is write the physicians and/or to the hospital, it was usually the hospital where the death occurred, and obtained medical records and ideally obtain pathology. And then Dr. Suzuki, one of the pathologists who was on the staff in the environmental sciences laboratory, would review the tissue, because there were many errors, especially back in the '70s and such were things as mesothelioma weren't as well recognized, and there would be misdiagnoses." And then he goes on. And then at the end of that paragraph he says -- and I can let you read it if you want. I don't think I'm missing anything that matters. But "So, at the end of the day we relied upon the most accurate and experienced pathologic diagnosis, along with the clinical judgment that Dr. Selikoff would bring as he would classify those."
Do you know, in the Markowitz studies and in the Selikoff and Seidman study, Exhibits 11 and 12, do you know the -- for the individuals in those studies the -- and for people who died, the number -- the percentage of individuals for which they had pathology evidence?
A Not off the top of my head, no.
Q Okay. And do you know -- in Dr. Whitehouse's CARD Mortality Study, do you know the percentage of

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deaths that he ultimately found were caused by asbestos-related disease for which he relied upon pathology as the best evidence?
A Not off the top of my head, no.
Q Okay. And you would agree in Dr. Frank's deposition that the individual in the CARD Mortality Study that made that judgment was Dr. Whitehouse; correct?
A I believe that's correct.
Q Have you had occasion to read any testimony by Dr. Whitehouse regarding his views of pathology evidence?
A I may have. I've read a lot of material, so I may have read something, but I don't remember what it was.
Q Okay. Do you recall ever reading anything where Dr. Whitehouse characterized his view of pathology evidence?
A Not that I remember.
Q Okay.
You've written in publications regarding the importance of having pathology evidence; correct?
A I have, yeah.
Q And you've written that it's the -- where you have it, it should be considered the best evidence of

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what the disease condition is; correct?
A Yes.
Q Would it concern you, in your evaluation of the CARD Mortality Study, if you learned that Dr. Whitehouse had rejected pathological evidence of whether or not pleural or parenchymal disease was present in an individual and relied, instead, on his clinical observations?
A As an epidemiologist, I would think that he should have relied on the autopsy pathology.
Q Do you agree that, as an epidemiologist, that a death rate reflects the number of deaths in a given population per a unit of time?
A Yes.
MS. HARDING: Want to take a break, another break?
THE WITNESS: Sure.
VIDEO TECHNICIAN: Off the record, the time is 11:26.
(Deposition in recess from 11:26 a.m. to 11:34 a.m.)
VIDEO TECHNICIAN: We're back on the record. The time is 11:34.
Q (By Ms. Harding) Just to finish up on the CARD Mortality Study, Dr. Molgaard, as you indicated at the

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beginning of the deposition, the CARD mortality study's a descriptive study, and it can't be used to test hypotheses; correct?

A Right.

Q There's a statement in Dr. Whitehouse's report. I was trying to locate it. Did I put it away here? Thank you. There's a statement in Dr. Whitehouse's report that on page 25 of his May '09 report, he says the death rate was "higher than even the insulators cohort. It is apparent that exposure to Libby asbestos is considerably more toxic to humans than was the predominately chrysotile asbestos exposure of the insulation workers." Do you see that?

A Yeah, it's in the second paragraph in the middle there? Right; yeah.

Q Okay. It's fair to say that that is not a conclusion that has been demonstrated by the CARD Mortality Study from an analytic epidemiological perspective; correct?

A Correct; he's arguing from a point of view of descriptive epidemiologic.

Q Okay. And that would be one of those arguments, I think you described earlier, that essentially are the formulation of a hypothesis that in order to be proved, needs controlled epidemiological

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analysis, analytic epidemiology, to determine whether it's true or not; correct?

A It's hypothesis generating, basically, yes.

Q The -- I'm going to read a statement from Dr. Whitehouse in his deposition in In re Grace, October 18, 2007, at 231, line 15, to 232, line 3. I'm not sure if I have it here or not. If you'd like to see it, I can try to look for it. But he's asked the question "I have a couple questions that I would like to ask you relating to autopsies. Typically, why are autopsies performed in medical cases or when people die?

"A That's a really good question because most physicians, in the general practice of internal medicine or chest disease, we don't even ask for autopsies because we know what they died of. We know more than the pathologist can tell us for the most part. And I really sincerely mean that. We've looked at them and have all the physiologic things. And also autopsies aren't needed. So autopsies generally don't help us very much with the cause of death. We have -- I don't know; you may have some specific questions concerning asbestos and go ahead and shoot on those."

Do you agree with Dr. Whitehouse's characterization of the relative importance of autopsies in understanding what somebody died from?

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A I think what he's doing is coming out from the point of view of pulmonology where -- you know, in general, I always think that it's best to have autopsy confirmation. Though, for lung diseases, you may not be in a situation where you need to have that because the diagnosis can be firmed up by the x-rays and by the functioning of the lung itself which you can test with, you know, the spirometry and stuff like this. So I think what he's doing is he's saying, you know, From my point of view, I don't need an autopsy for lung diseases.

In general, as I said earlier, I believe that autopsy confirmation is very useful. Though, for lung diseases, I could see where it would be harder to do a good autopsy confirmation on that and maybe unnecessary. You know, it's kind of outside of my expertise because it's getting a little bit into pulmonology land here. But he may be right for lung disease.

I think if you're doing other kinds of things, if you're doing, I don't know, some other disease, it might be much more appropriate to do the autopsy.

The real bottom line is that it's very hard, often, to get autopsy confirmation. It's hard to get autopsy material for lots of different things. And often you can only get a minor percentage of your cases.

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In any given study you could actually find -- in any given mortality study actually find an autopsy to use. It's difficult. So anyway.

Q Do you agree, as I think you've stated previously, that rates will vary with the -- rates of disease --

A Uh-huh.

Q -- will vary with the intensity with which any population is studied, and histologic confirmation is essential if one is to have confidence when comparing results from one population with another. Do you agree with that?

A I think, by and large, that is true.

Q And the reason I ask these questions is because in your report, you're relying -- well, back up.

You assume, without necessarily even relying, but you assume that Dr. Whitehouse's diagnoses of asbestos-related disease in his patient population and his best evidence judgments in the CARD Mortality Study are accurate; correct?

A Yes.

Q Okay. Indeed, you assume that for all of his diagnoses, he follows the criteria for diagnosing asbestos-related disease as set out in the American Thoracic Society; correct?

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A I am assuming that, yeah.
Q Okay. You're assuming that he does the exposure assessment as set out by the applicable ATS guideline at the time of the diagnosis; correct?
A I'm assuming that.
Q And you're assuming that he -- in making a diagnosis of an asbestos-related disease, you're assuming that -- in all -- in your statements in your report, you're assuming that he has excluded other causes of disease as required by the ATS; correct?
A I'm assuming he has done that correctly; yeah.
Q Okay. And have you been presented by counsel for the Libby Claimants with any documents or testimony from Dr. Whitehouse that he's given in this case -- or that he's provided in this case, where he has admitted and discussed why, in some circumstances, he has not and does not always follow the American Thoracic Society guidelines for diagnosis of disease? Have you seen any of that in his testimony?
MR. HEBERLING: Objection; misstatement of the record.
Q (By Ms. Harding) You can answer if you understand.
A I'm not sure if I've seen a discussion of his not following the guidelines. I may have, I just don't

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remember it.
Q Okay. I was just trying not to cover something that he was going to cover so you have to discuss it twice.
A Uh-huh.
Q Dr. Molgaard, what's your understanding of the geographic distribution of the patients in Dr. Whitehouse's -- well, let's start with his patient population. Do you have an understanding of how many patients are in his -- how many patients he has?
A I have a -- yeah.
Q And what is that?
A I believe I was told that there were 1,800.
Q Okay. And of those 1,800, do you have an understanding of, geographically, where they come from?
A My belief is that they are mainly from Lincoln County.
Q Okay. Is it your -- because I took from your report that you believed that all of his patients were from Lincoln County. Is that what you believe to be true?
A No. I think there are some that are from Spokane, I believe.
Q Okay. And other than -- and do you know how many are from Spokane?

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A No.
Q Okay. In any of the documents that you've seen, did you happen to see anything that delineated where the patients were from?
A I don't remember seeing anything like that.
Q And do you have any knowledge of whether there are patients in the 1,800 of Dr. Whitehouse's population that come from places other than Spokane and Lincoln County?
A I imagine there probably are.
Q Okay.
A I don't know the exact numbers or whatever, but -- I haven't seen a distribution list, but I would imagine that some of them are.
Q Okay. So it's fair to say that not all of the individuals in Dr. Whitehouse's patient population come from Lincoln County; correct?
A I would think that's probably safe to say.
Q Or currently reside in Lincoln County.
A I would think that's probably safe to say.
Q We talked briefly earlier about -- I don't know how much you know about the Grace operation of the mine in Libby, Montana. But are you aware that Grace mined vermiculite in Libby, Montana?
A Yes.

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Q And are you aware that it was milled in Libby -- milled in Libby and then into what's often called concentrate?
A Yes.
Q And that concentrate was, then, shipped by rail car, either in bags or in big, you know, rail cars --
A Uh-huh.
Q -- to many different locations all over the country. Are you aware of that?
A Yes. I believe over 200 sites it was shipped to, yeah.
Q Okay. So I just want to ask you a few questions about -- about that. Hypothetically, if there is an individual in Libby who is loading on the vermiculite concentrate to a rail car, either by dumping it or handling bags onto a car and they're exposed; correct?
A Right.
Q Okay. That rail car goes across the country and, let's say, it goes to Boston --
A Right.
Q -- and it ends in Boston. And there's a person in Boston who then takes the vermiculite out of the rail car, either in bags or somehow or another helps to dump it into something else and transports it to somewhere;